ABSTRACT

The effect of elicitation on production of secondary substances in cultures in vitro

Plant secondary metabolites are important sources for pharmaceutical, chemical and food industry. Elicitation is one of the possibilities how to increase the production of secondary subtances in cultures *in vitro*. The effect of abiotic elicitor 2-(3-brombenzylsulfanyl)pyridine-4-karbothioamide with antituberculotic activity on the isoflavonoids production *Genista tinctoria* callus and suspension culture was tested in this study. The elicitor was applied in three concentrations. Elicitation was run in this time intervals: 6, 12, 24, 48, 72 and 168 hours. Cultures were cultivated on nutrient medium, that described Shenk and Hildebrant with the addition of 0,5 mg/l of 2,4-dichlorfenoxyacetic acid and 0,1 mg/l of kinetin. The content of isoflavonoids was determined by HPLC. The highest content of isoflavonoids (0,03 %) in callus culture was found after the application of elicitor's solution in concentration of c_3 = 2,96 x 10^{-5} mol/l after 24 hours of treatment. The maximum production of daidzein (0,02 %) in callus culture was detected after 48 hours of elicitor treatment in concentartion of c_1 = 2,96 x 10^{-3} mol/l and after 24 hours of elicitor treatment in concentration of c_3 = 2,96 x 10^{-5} mol/l. Suspension culture produced the highest amount of isoflavonoids (0,03 %) after aplication of elicitor's solution in concentration of c_2 = 2,96 x 10^{-4} mol/l after 24 and 168 hours of treatment and after aplication of elicitor's solution in concentration of c_3 = 2,96 x 10^{-5} mol/l after 168 hours of treatment. The highest content of genistin (0,03 %) in suspension culture was detected after elicitation of solution in concentration of c_2 = 2,96 x 10^{-4} mol/l after 24 hours of treatment. The maximum content of daidzein (3,80 mg/l) released in suspension culture's medium was found after aplication of elicitor in concentration of c_2 = 2,96 x 10^{-4} mol/l after 12 hours of treatment.